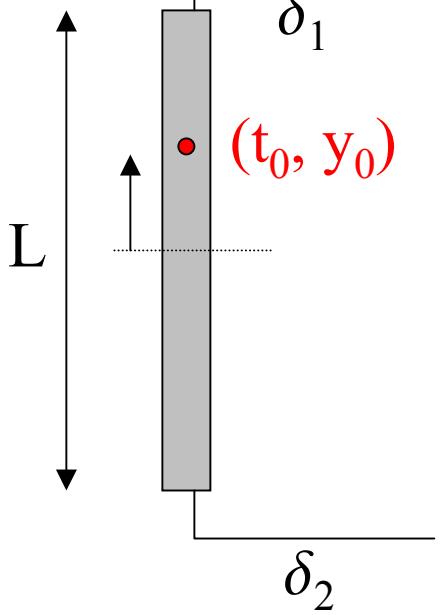
Beam ToF Delay Calibration (February 17, 2004)



$$t_1 = t_0 + \frac{L/2 - y_0}{v_{eff}} + \delta_1 - t_{ref}$$

$$t_2 = t_0 + \frac{L/2 + y_0}{v_{eff}} + \delta_2 - t_{ref}$$

define:

$$d = \delta_2 - \delta_1$$

$$D = \frac{\delta_2 + \delta_1}{2}$$

$$\Delta T = \frac{t_2 + t_1}{2} = t_0 + \frac{L}{2v_{eff}} + D - t_{ref}$$

$$\Delta t = \frac{t_2 - t_1}{2} = \frac{y_0}{v_{eff}} + \frac{d}{2}$$

can solve for individual delays

for now, assume particle passes at $y_0 = 0$. But, MWPC's can give us y_0 (for TofB at least)